

### ABSTRACT

A galvanic cell having a cathode, an anode, and an electrolyte. The cathode and anode each have vesicles, an electroactive species encapsulated into the vesicles, a conducting substrate, and functionalized tethers immobilizing the vesicles to the substrates. The electrolyte is in contact with both conducting substrates. At least some of the vesicles contain benzoquinone and/or hydroquinone.